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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,986	11/21/2001	Hideo Tashiro	05426/014001	1725

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EXAMINER
FORMAN, BETTY J

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/989,986	TASHIRO ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *8 and 16-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *march/02* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-7, 9-15 in papers filed 19 February 2003 is acknowledged.

Claims 8 and 16-18 are withdrawn from consideration.

Claims 1-7 and 9-15 are discussed below.

Specification

2. The abstract of the disclosure is objected to because it contains more than 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because the Markush Group recites "or" multiple times. Therefore, it is unclear what supports are encompassed by the Markush Group. It is suggested that Claim 3 be amended to recite "or" only once.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The claims are broadly drawn to a support comprising a plurality of probe-attachable spots. The broad claim language encompasses various embodiment including a support comprising a plurality of oligonucleotides to which complementary oligonucleotides attach (hybridize).

35 USC § 102 over Dale

7. Claims 1-7, 9-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Dale (U.S. Patent No. 6,440,723, filed 17 March 2000).

Regarding Claim 1, Dale discloses a microarray support for spotting solutions containing probe biomolecules, the support comprising a plurality of small-sized probe biomolecule-attachable spots arrayed in a regular arrangement on the surface of the support (Column 2, lines 37-44; Column 7, line 65-Column 8, line 25; and Claims 1-13).

The recitations "small-sized" and "arrayed in a regular arrangement" are given the broadest reasonable interpretation consistent with the broad claim language. Dale teaches the spots are "very small" (Column 17, lines 1-8) and they teach that the spots form a pattern (e.g. Column 19, lines 9-24). The teaching of Dale is encompassed by the broadly claimed "small-sized" and "regular arrangement".

Regarding Claim 2, Dale discloses the microarray wherein the biomolecule-attachable spots have a layer selected from the group consisting of avidin, streptavidin, biotin, amino group, carbonyl group, hydroxyl group, succinimide group, maleimide group and thiol group (Column 7, line 65-Column 8, line 25; Column 13, line 48-Column 14, line 65; and Column 18, lines 10-16).

Regarding Claim 3, Dale discloses the microarray wherein the support is glass, silicon or plastic (Column 17, lines 40-60O.

Regarding Claim 4, Dale discloses the microarray wherein said biomolecule-attachable spot have avidin molecules bound to a single layer to the ends of biotin bound to the surface of the support i.e. the surface is spotted with biotin and avidin-modified probes are bound to the biotin to form a single layer (Column 13, lines 48-Column 14, line 6).

Regarding Claim 5, Dale discloses the microarray wherein probe biomolecules are bound to the probe-attachable spots (Column 7, line 65-Column 8, line 25 and Column 13, line 48-Column 14, line 6).

Regarding Claim 6, Dale discloses the microarray wherein the probe biomolecules are DNA, RNA or proteins (Column 4, lines 52-61 and Column 5, lines 1-7).

Regarding Claim 7, Dale discloses the microarray wherein the probe biomolecules are biotin-labeled and are bound to the probe-attachable spots by biotin-avidin binding (Column 7, line 65-Column 8, lines 25).

Regarding Claim 9, Dale discloses the microarray of Claim 2 wherein the support is glass, silicon or plastic (Column 17, lines 40-60O.

Regarding Claim 10, Dale discloses the microarray of Claim 2 wherein said biomolecule-attachable spot have avidin molecules bound to a single layer to the ends of biotin bound to the surface of the support i.e. the surface is spotted with biotin and avidin-modified probes are bound to the biotin to form a single layer (Column 13, lines 48-Column 14, line 6).

Regarding Claim 11, Dale discloses the microarray of Claim 3 wherein said biomolecule-attachable spot have avidin molecules bound to a single layer to the ends of biotin bound to the surface of the support i.e. the surface is spotted with biotin and avidin-modified probes are bound to the biotin to form a single layer (Column 13, lines 48-Column 14, line 6).

Regarding Claim 12, Dale discloses the microarray of Claim 2 wherein probe biomolecules are bound to the probe-attachable spots (Column 7, line 65-Column 8, line 25 and Column 13, line 48-Column 14, line 6).

Regarding Claim 13, Dale discloses the microarray of Claim 3 wherein probe biomolecules are bound to the probe-attachable spots (Column 7, line 65-Column 8, line 25 and Column 13, line 48-Column 14, line 6).

Regarding Claim 14, Dale discloses the microarray of Claim 4 wherein probe biomolecules are bound to the probe-attachable spots (Column 7, line 65-Column 8, line 25 and Column 13, line 48-Column 14, line 6).

Regarding Claim 15, Dale discloses the microarray of claim 6 wherein the probe biomolecules are biotin-labeled and are bound to the probe-attachable spots by biotin-avidin binding (Column 7, line 65-Column 8, lines 25).

35 USC § 102 over Brown et al

8. Claims 1-3, 5, 6, 9, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al (U.S. Patent No. 5,807,522, issued 15 September 1998).

Regarding Claim 1, Brown et al disclose a microarray support for spotting solutions containing probe biomolecules, the support comprising a plurality of small-sized probe biomolecule-attachable spots arrayed in a regular arrangement on the surface of the support (Column 11, line 51-Column 12, line 22 and Fig. 11).

The recitations "small-sized" and "arrayed in a regular arrangement" are given the broadest reasonable interpretation consistent with the broad claim language. Brown et al teach the spots are about 1x1mm (Column 11, lines 62-67) and they illustrate the spots form a pattern (e.g. Fig. 5-6). The teaching of Brown et al is encompassed by the broadly claimed "small-sized" and "regular arrangement".

Regarding Claim 2, Brown et al teach the microarray wherein the biomolecule-attachable spots have a layer selected from the group consisting of amino group (Column 4, lines 34-44).

Regarding Claim 3, Brown et al disclose the microarray wherein the support is glass, or plastic (Column 4, lines 35-43).

Regarding Claim 5, Brown et al disclose the microarray wherein probe biomolecules are bound to the probe-attachable spots (Column 11, line 51-Column 12, line 22 and Fig. 11).

Regarding Claim 6, Brown et al disclose the microarray wherein the probe biomolecules are DNA or proteins (Column 4, lines 16-24).

Regarding Claim 9, Brown et al disclose the microarray of Claim 2 wherein the support is glass, or plastic (Column 4, lines 35-43).

Regarding Claim 12, Brown et al disclose the microarray of Claim 2 wherein probe biomolecules are bound to the probe-attachable spots (Column 11, line 51-Column 12, line 22 and Fig. 11).

Regarding Claim 13, Brown et al disclose the microarray of Claim 3wherein probe biomolecules are bound to the probe-attachable spots (Column 11, line 51-Column 12, line 22 and Fig. 11).

35 USC § 102 over Sluka et al

9. Claims 1-3 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Sluka et al (U.S. Patent No. 6,221,674, issued 24 April 2001).

Regarding Claim 1, Sluka et al disclose a microarray support for spotting solutions containing probe biomolecules, the support comprising a plurality of small-sized probe biomolecule-attachable spots arrayed in a regular arrangement on the surface of the support (Abstract; Example 1, Column 4, lines 30-62; Fig. 4 and Claims 1-11).

The recitations "small-sized" and "arrayed in a regular arrangement" are given the broadest reasonable interpretation consistent with the broad claim language. Sluka et al teach the spots are $\leq$ 5mm(Column 3, lines 57-65) and they teach that the spots form a pattern (Fig. 4). The teaching of Sluka is encompassed by the broadly claimed "small-sized" and "regular arrangement".

Regarding Claim 2, Sluka et al disclose the microarray wherein the biomolecule-attachable spots have a layer selected from the group consisting of avidin, streptavidin, biotin, and thiol group (Column 3, lines 31-37 and Claim 7).

Regarding Claim 3, Sluka et al disclose the microarray wherein the support is glass, gold, gold plated, silver or silver plated (Column 3, lines 4-19).

Regarding Claim 9, Sluka et al disclose the microarray of Claim 2 wherein the support is glass, silicon or plastic (Column 3, lines 4-19).

Conclusion

10. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (703) 308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
July 10, 2003